

REMARKS

Prior to this amendment, Claims 1-26 were pending in the above-captioned patent application. Through this amendment, new claim 27 has been added. As such, claims 1-27 are now pending in the above-referenced patent application. No new matter has been added. Further, claim 11 has been amended to correct a typographical error.

All of the claims were rejected. Claims 1-17 and 21-24 were provisionally rejected under 35 U.S.C. 101 (provisional double patenting rejection) as claiming the same invention as that of Claims 1-17 and 24-27 of Application No. 10/116,511.

Claims 1-2, 7-15, 17-23 and 25-46 were rejected under 35 USC 10(3) as being unpatentable over USPN 6,640,278 to Nolan et al (“Nolan”) in view of US Patent Application No. 2003/0033308 to Patel et al (“Patel”).

Claim 3 was rejected under 35 USC 103(a) as being unpatentable over Nolan in view of Patel as applied to Claim 1, and further in view of USPN 6,407,680 to Lai et al (“Lai”).

Claims 4-6, 16 and 24 were rejected under 35 USC 103(a) as being unpatentable over Nolan in view of Patel as applied to Claim 1, and further in view of USPN 6,466,978 to Mukherjee et al (“Mukherjee”).

Double Patenting Rejection

Claims 1-17 and 21-24 were provisionally rejected under 35 U.S.C. 101 (provisional double patenting rejection) as claiming the same invention as that of Claims 1-17 and 24-27 of Application No. 10/116,511. However, it is respectfully submitted that the captioned application ser. no. 10/001,735, and application ser. no. 10/116,511 have different ownership entities. The captioned application ser. no. 10/001,735, was executed and assigned by the sole inventor Sheng Tai Tsao to Quantum Corporation as of the date of filing of the application on Oct. 23, 2001, and is owned in its entirety by Quantum Corporation (Assignment recorded Reel/Frame: 012352/0125). It appears that thereafter on April 5, 2002, inventor Sheng Tai Tsao filed

application ser. no. 10/116,511 on his own (application ser. no. 10/116,511 is not assigned to Quantum Corporation). The captioned application ser. no. 10/001,735 was owned entirely by Quantum Corporation at the time of filing of application ser. no. 10/116,511 by Sheng Tai Tsao.

Further, because ser. no. 10/116,511 was filed on April 5, 2002, which is after the filing date of ser. no. 10/001,735 on Oct. 23, 2001, it is believed that the double patenting rejection only applies to ser. no. 10/116,511 and not to the captioned application ser. no. 10/001,735.

For at least the above reasons, it is respectfully submitted that the double patenting rejection in the captioned application ser. no. 10/001,735 should be withdrawn. In case the above information insufficient to overcome the double patenting rejection, the right to provide further arguments/amendments/information to overcome the double patenting rejection in application ser. no. 10/001,735 is expressly reserved.

Rule 1.131 Declaration

Claims 1-2, 7-15, 17-23 and 25-46 were rejected under 35 USC 10(3) as being unpatentable over Nolan in view of Patel. Claim 3 was rejected under 35 USC 103(a) as being unpatentable over Nolan in view of Patel as applied to Claim 1, and further in view of Lai. Claims 4-6, 16 and 24 were rejected under 35 USC 103(a) as being unpatentable over Nolan in view of Patel as applied to Claim 1, and further in view of Mukherjee.

These rejections prompted Applicants' representative to inquire whether Applicants could swear behind and provide evidence of conception prior to the references relied upon, in particular Patel. Applicant believes that the accompanying Declaration under 37 CFR 1.131 should overcome all the rejections that reference Patel. The accompanying Declaration by the inventor is for the purpose of swearing behind the effective filing date of Patel, and any others that may be applied in future rejections of this present application for patent.

The earliest date of conception in the captioned application ser. no. 10/001,735 for which corroborating evidence is provided is January of 2000. Accordingly, references having filing dates later than January 2000 should not be used against claims to the same subject matter in the present

invention. Patel has an effective filing date of August 3, 2001, which is later than the conception date of the present invention in January 2000.

If for any reason the accompanying Rule 1.131 Declaration is not sufficient to overcome the rejections that reference Patel, Applicant reserves the right to provide further information/arguments in support of thereof, and also provides the following arguments in support of allowance of the claims.

Rejection of Claims 1-2, 7-15, 17-23 and 25-46 under 35 USC 103(a)

Claims 1-2, 7-15, 17-23 and 25-46 were rejected under 35 USC 103(a) as being unpatentable over Nolan in view of Patel. Rejection of the claims is respectfully traversed because the references, alone or in combination, do not disclose all of the claimed limitations.

Nolan is directed to configuration and management of storage resources in a storage network. In col. 6, lines 11-20 (relied on by the Examiner) Nolan mentions that a storage director logic in each storage server (e.g., storage sever 1300 in Fig.3), utilizes a virtual device architecture to provide a single intelligent coordination point for the configuration of client server access to storage using storage domain configurations. The configuration of a storage server provides configuration information and control by allowing automatic maintenance of the mapping of data sets in physical storage to servers.

Further, in col. 6, 55-67 (relied on by the Examiner) Nolan mentions that the storage servers 1300, 1301, and 1302 are coupled to a plurality of client servers 1310 through 1318. The client servers 1313 and 1314 are connected through a hub 1320 to the storage server 1301. Likewise, the client servers 1316 through 1318 are connected to a hub 1321 which in turn is connected to the storage server 1302. The client servers 1310-1318 communicate with the storage server using storage channel protocols. Storage transactions are requested, and carry an identifier of the initiator of the request, a logical unit number (LUN), and an identifier of the target storage device.

As such, in the above passages, Nolan describes a network with three types of devices: (1) client servers 1310-1318, (2) storage servers 1300-1302, and (3) storage devices 1332-1339. Each storage serve has a storage director logic that uses storage domain configuration to provide a single coordination point for the configuration of access to the storage devices by the client servers. The configuration of each storage server provides configuration information and control by allowing automatic maintenance of the mapping of data sets in the storages devices to the storage servers. Nolan further mentions that storage transactions are requested, and carry an identifier of the initiator of the request, a logical unit number (LUN), and an identifier of the target storage device.

Therefore, as per **Claims 1, 9 and 21**, it is respectfully submitted that Nolan does not disclose providing multiple network attached storage (NAS) servers, and storing content files on each NAS server for access by one or more clients. Further, Nolan does not disclose receiving a request for a content file from a client via a communication link, as claimed. Rather, as discussed above, Nolan specifically states that storage transactions are requested, and carry an identifier of the initiator of the request, a logical unit number (LUN), and an identifier of the target storage device (Nolan, col. 6, line 65 to col. 7, line 1). Therefore, in Nolan a request includes the identity of the specific target storage, whereas as claimed herein, the client request is for a content file without the need to identify the specific NAS server in which the content file is stored. Such limitations are not disclosed or fairly suggested by Nolan. According to the claimed invention, the NAS server that stores the requested content file is not, and need not be, identified by the client. Rather, the client only requests a content file, and a controller then finds the NAS server that stores the requested content file.

Further, as the Examiner also states, Nolan does not disclose: selecting one of the NAS servers that stores the requested content file, establishing a data stream between that client and the selected NAS server, and providing the requested content file from the selected NAS to the requesting client via the data stream, independent of other NAS servers. However, the Examiner states that Patel paragraph [0063] discloses such limitations.

Patel is directed to providing a distributed file system utilizing metadata to track

information about data stored throughout the system. Metadata is data at a higher level of abstraction. Patel's distributed file system stores file data among a set of smart storage units which are accessed as *a single file system*. A metadata data structure is used to track and manage information about each file (Abstract, paragraph [0008]). Patel attempts to create a single/large file system on top of multiple smart storage devices, wherein each smart storage device is configured to communicate with other smart storage devices and to process requests for files, where data of the requested files is distributed among a subset of the smart storage devices (e.g., paragraphs [0037], [0051]).

Accordingly, it is respectfully submitted that Patel teaches away from the claimed limitations of: upon receiving a request for a content file from a client, selecting one of the NAS servers that stores the requested content file, establishing a data stream between that client and the selected NAS server, and providing the requested content file from the selected NAS to the requesting client via the data stream, independent of other NAS servers. Indeed as Patel states, the smart storage devices of Patel work together to process requests for files because data of the requested files is distributed among a subset of the smart storage devices.

In paragraph [0063] (relied on by the Examiner), Patel states:

Table 1 illustrates one embodiment of a sample set of file system layers through which a file request is processed in order to access the physical storage device. The exemplary file system layers include a User layer, a Virtual File System layer, a Local File System layer, a Local File Store layer, and a Storage Device layer.

TABLE 1

User Space <u>Kernel Space</u>	User Layer
	Virtual File System Layer Local File System Layer Local File Store Layer Storage Device Layer

As is clear from the above passage, Patel is simply discussing file system layers for processing file requests. Patel's file system layers (User Space and Kernel Space) or file request processing, do not disclose the claimed limitations of: selecting one of the NAS servers that stores the requested content file, establishing a data stream between the requesting client and the selected NAS server, and providing the requested content file from the selected NAS to the requesting client via the data stream, independent of other NAS servers, as claimed herein.

It is well settled that in order for a modification or combination of the prior art to be valid, the prior art itself must suggest the modification or combination, "...invention cannot be found obvious unless there was some explicit teaching or suggestion in the art to motivate one of ordinary skill to combine elements so as to create the same invention." *Winner International Royalty Corp. v. Wang*, No. 96-2107, 48 USPQ.2d 1139, 1140 (D.C.D.C. 1998) (emphasis added). "The prior art must provide one of ordinary skill in the art the motivation to make the proposed molecular modifications needed to arrive at the claimed compound." *In re Jones*, 958 F.2d 347, 21 USPQ.2d 1941, 1944 (Fed. Cir. 1992) (emphasis added). Neither of the references suggests the motivation to modify or combine the references as proposed. The references are individually complete and functionally independent for their limited specific purposes and there would be no reason to make the modification proposed by the Office Action. Therefore, because neither of the prior art references suggests the combination and modifications proposed by the Patent Office the combination and modifications are improper.

The Examiner states that it would be advantageous to modify Nolan according to Patel to allow intelligent distributed file system to utilize a data structure to track and manage detailed information about each file. However, the motivation stated by the Examiner for modifying Nolan according to Patel, is not suggested by the references themselves. Further, the Examiner has not explained how Nolan would operate as modified according to Patel. In addition, Nolan and Patel utilize non-compatible file structures as in Nolan the identity of the storage device that stores a file is required in a request because Nolan does not implement a distributed file system where blocks

of a file are stored on different storage devices, but Patel implements a single file system on several storage devices where blocks of a file are stored on different storage devices. As such, Nolan and Patel cannot be combined, and if they can be, such combination would require significant modifications that are not obvious to one of ordinary skill in the art. For at least these reasons, it is respectfully submitted that rejections of Claims 1, 9, 21 and all claims dependent therefrom should be withdrawn.

As per **Claim 2**, as the Examiner also states, Nolan does not disclose determining if one of the NAS servers stores the requested content file, and if so, selecting that NAS server. The Examiner relied on paragraph [0063] of Patel as disclosing such limitations. However, as discussed above, Patel uses a single file system where blocks of a requested file are not on a single storage server. As such, Patel does not disclose determining if one storage device stores the requested file, as required by Claim 2. For at least these reasons, it is respectfully submitted that rejection of Claim 2 should be withdrawn.

As per **Claim 7**, as the Examiner also states, Nolan does not disclose the claimed limitations. The Examiner relied on paragraph [0063] of Patel as disclosing such limitations. However, as discussed, Patel uses a single file system where blocks of a requested file are not on a single storage server. As such, Patel does not disclose determining if one storage device stores the requested file, as required by Claim 7. Further, Patel does not disclose establishing a data stream between each requesting client and each selected NAS server. According to the claimed invention herein, a NAS server streams a requested content file to a client independent of other NAS servers. However, Patel utilizes a single file system where multiple intelligent storage servers are involved in providing a content file to a client (e.g., Patel, paragraphs [0034], [0051]). For at least these reasons, it is respectfully submitted that rejection of Claim 7 and all claims dependent therefrom should be withdrawn.

As per **Claim 10**, as the Examiner also states, Nolan does not disclose a switch for connecting the clients to the NAS servers in response to control signals, via a communication line, as claimed. Further, in Paragraph [0051] relied on by the Examiner, Patel specifically states that a

file is distributed among multiple servers for better throughout. As such, Patel does not disclose establishing a data stream between a requesting client and a selected NAS server via a switch, allowing data streaming. According to the claimed invention herein, a NAS server streams a requested content file to a client independent of other NAS servers. However, Patel utilizes a single file system where multiple intelligent storage servers are involved in providing a content file to a client (e.g., Patel, paragraphs [0034], [0051]). For at least these reasons, it is respectfully submitted that rejection of Claim 10 and all claims dependent therefrom should be withdrawn.

Claim 11, 12 and 13 were rejected for essentially the same reasons as Claim 10, and should therefore be allowed for at least the reasons provided in relation to Claim 10.

As per **Claims 15 and 23**, Nolan col. 7, lines 3-15 (relied on by the Examiner), mentions that the servers include resources to emulate the largest storage device so that the client servers interoperate smoothly with the storage devices. However, there is no teaching or suggestion in that passage (or elsewhere in Nolan) of a server providing multiple data streams to multiple clients, as claimed. For at least these reasons, it is respectfully submitted that rejection of Claims 15 and 23 should be withdrawn.

As per **Claim 18**, in col. 8, lines 25-35 (relied on by the Examiner), Nolan mentions that the interface 120 provides software modules for managing the storage server 102 (that is one storage server). There is no mention in Nolan of a management controller that includes a NAS monitor module which monitors operation of multiple NAS servers, and selects NAS servers to provide content files to clients, as claimed. For at least these reasons, it is respectfully submitted that rejection of Claim 18 and all claims dependent therefrom should be withdrawn.

As per **Claim 20**, in col. 5, lines 30-35 (relied on by the Examiner), Nolan only mentions high speed communication links between the storage server 1200 and the client servers 1201-1203. However, there is no mention in Nolan of a data streaming interface module which provides service for reading content files from that NAS server and sending the data to the requesting client via a data stream, as claimed. Data streaming as claimed is patentably distinct from high speed communication links in Nolan. For at least these reasons, it is respectfully submitted that rejection

of Claim 20 should be withdrawn.

As per **Claim 26**, as discussed in relation to Claims 18 and 20 above, in col. 5, lines 3-35 and col. 8, lines 24-35, Nolan does not disclose that each NAS server includes a data streaming interface module which provides service for reading content files from that NAS server and sending the data to the requesting client via a data stream, as claimed. For at least these reasons, it is respectfully submitted that rejection of Claim 26 should be withdrawn

Rejection of Claim 3 under 35 USC 103(a)

Claim 3 was rejected under 35 USC 103(a) as being unpatentable over Nolan in view of Patel as applied to Claim 1, and further in view of Lai. However, as discussed, Nolan and Patel do not disclose limitations of base Claim 1. As the Examiner also states, Nolan and Patel do not disclose limitations of Claim 3. Lai, in col. 13, lines 1-15 (relied on by the Examiner), mentions that a file is archived and that the identity and location of the archived file is reported by web-server interface 204 to task manager 206, which stores the information in database 210.

It is respectfully submitted that there is nothing in Lai, in col. 13, lines 1-15 (or elsewhere) which teaches or suggests obtaining identification formation of a NAS server, as required by Claim 3. In Lai, only identity and location of the archived file is maintained. Further, there is no teaching or suggestion in Lai about maintaining content information corresponding to each identified NAS server, as required by Claim 3. In Lai, the identity and location of the archived file is only about the archived file, which does not provide content information corresponding to each identified server, as claimed. In addition, there is no teaching or suggestion in Lai about checking the content information to determine if one of the identified NAS servers stores the requested content file. Lai only mentions that identity and location of an archived file is stored in a database for future reference. However, Lai does not teach or suggest anything about checking the content information of a NAS server to determine if one of the identified NAS servers stores the requested content file.

It is well settled that in order for a modification or combination of the prior art to be valid,

the prior art itself must suggest the modification or combination, “...invention cannot be found obvious unless there was some explicit teaching or suggestion in the art to motivate one of ordinary skill to combine elements so as to create the same invention.” *Winner International Royalty Corp. v. Wang*, No. 96-2107, 48 USPQ.2d 1139, 1140 (D.C.D.C. 1998) (emphasis added). “The prior art must provide one of ordinary skill in the art the motivation to make the proposed molecular modifications needed to arrive at the claimed compound.” *In re Jones*, 958 F.2d 347, 21 USPQ.2d 1941, 1944 (Fed. Cir. 1992) (emphasis added). Neither of the references suggests the motivation to modify or combine the references as proposed. The references are individually complete and functionally independent for their limited specific purposes and there would be no reason to make the modification proposed by the Office Action. Therefore, because neither of the prior art references suggests the combination and modifications proposed by the Patent Office the combination and modifications are improper.

In col. 11, lines 60-64, it is respectfully submitted that Lai does not disclose a motivation to combine the references as the Examiner contends. In col. 11, lines 60-64, Lai mentions caching a copy of the original media content in a master archive 214 to avoid having to fetch the original media content from the outside when a subsequent request for the same media content is received. As such, it is respectfully submitted that, there Lai is simply discussing the benefits of caching known in the art. This has nothing to do with any motivation of obtaining identification information from each NAS server, maintaining content information corresponding to each identified NAS server, and checking the content information to determine if one of the identified NAS servers stores the requested content file, and if so providing content from that NAS server to a client, as claimed.

Further, the references cannot be combined as the Examiner suggests. As discussed, Nolan and Patel cannot be combined without significant modification. Indeed, combining Lai with Nolan and Patel further complicates the matter, and requires significant modifications to the references that are not obvious to one of ordinary skill in the art. Further, even if the references can be combined, as discussed the combination does not disclose all of the claimed limitations. For at

least these reasons, it is respectfully submitted that rejection of Claim 3 should be withdrawn.

Rejection of Claims 4-6, 16 and 24 under 35 USC 103(a)

Claims 4-6, 16 and 24 were rejected under 35 USC 103(a) as being unpatentable over Nolan in view of Patel as applied to Claim 1, and further in view of Mukherjee. Rejection of the claims is respectfully traversed because the references, alone or in combination, do not disclose all of the claimed limitations.

As discussed above, Nolan and Patel do not disclose all of the limitations of base Claims 1, 9 and 21.

As per **Claims 4, 16 and 24**, as the Examiner also states, Nolan and Patel do not disclose the claimed limitations. However, the Examiner states that in col. 9, lines 32-45 and col. 13, lines 37-45, Mukherjee discloses the claimed limitations.

In col. 9, lines 32-45 and col. 13, lines 37-45, Mukherjee states:

The mirror of a manager remains inactive until a manager failure occurs. An example of a manager failure is when a client sends a request to a manager and doesn't receive a response within a predetermined inactivity time period. When a manager failure occurs, the requesting client activates the mirrored version. The mirrored version then becomes the new manager and creates a mirror on a network node. The new manager then broadcasts a message to the other managers and the clients associated with its management functions, notifying them of the change in status and the identity of its mirror. After the notification is sent, all of the inactivity timers that corresponded with the failed manager are restarted and associated with the new manager. (col. 9, lines 32-45).
The file manager mirror 307 is activated if a client request sent to a disk manager 306 is not processed within a predetermined time period. The file manager mirror 307 then becomes the new disk manager 306 and selects a new file manager mirror 307. The new disk manager broadcasts a message to the clients 304 and disk managers 306 providing notice of its new identity. All of the associated circular queue timers 318 and fault tolerance timers are then restarted. (col. 13, lines 37-45).

As is clear from the above passages (relied on by the Examiner), in Mukherjee when a

manager failure occurs *the requesting client activates a mirrored version* to become a new manager and *creates a mirror on a network node*. The file manager mirror 307 then becomes the new disk manager 306 and selects a new file manager mirror 307. The new disk manager broadcasts a message to the clients 304 and disk managers 306 providing notice of its new identity.

As such, Mukherjee does not mention spare servers as claimed, only a manager mirror (which is not a spare server). Further, Mukherjee does not mention storing content files on a spare server in advance of a fault as claimed (Mukherjee states above that after a manager failure occurs a mirror is created in a network node). In addition, Mukherjee detects mirror manager failure, not fault in an NAS server currently providing requested content file to a client as claimed. Further, clearly there is no mention in Mukherjee of identifying a spare NAS server storing a requested content file that was stored in a faulty server. Indeed, in Mukherjee after a manager failure occurs a mirror is created in a network node, and there is no content file streaming to client relationship in Mukherjee. Finally, Mukherjee does not disclose selectively re-establishing said data stream between that client and the spare NAS storing the requested content file, wherein that spare NAS server provides the content file to the client via the data stream, independent of other NAS servers, as claimed. Indeed, in Mukherjee the client activates the mirror manager as a new disk manger which broadcasts a message to the clients and disk managers providing notice of its new identity. There is nothing in Mukherjee that has to do with re-establishing a data stream between a client and a spare NAS storing the requested content file.

It is well settled that in order for a modification or combination of the prior art to be valid, the prior art itself must suggest the modification or combination, "...invention cannot be found obvious unless there was some explicit teaching or suggestion in the art to motivate one of ordinary skill to combine elements so as to create the same invention." *Winner International Royalty Corp. v. Wang*, No. 96-2107, 48 USPQ.2d 1139, 1140 (D.C.D.C. 1998) (emphasis added). "The prior art must provide one of ordinary skill in the art the motivation to make the proposed molecular modifications needed to arrive at the claimed compound." *In re Jones*, 958 F.2d 347, 21 USPQ.2d 1941, 1944 (Fed. Cir. 1992) (emphasis added). Neither of the references suggests the

motivation to modify or combine the references as proposed. The references are individually complete and functionally independent for their limited specific purposes and there would be no reason to make the modification proposed by the Office Action. Therefore, because neither of the prior art references suggests the combination and modifications proposed by the Patent Office the combination and modifications are improper.

Further, the references cannot be combined as the Examiner suggests. As discussed, Nolan and Patel cannot be combined without significant modification. Indeed, combining Mukherjee with Nolan and Patel further complicates the matter, and requires significant modifications to the references that are not obvious to one of ordinary skill in the art. Further, even if the references can be combined, as discussed the combination does not disclose all of the claimed limitations. For at least these reasons, it is respectfully submitted that rejection of Claims 4, 16 and 24 should be withdrawn.

As per **Claim 5**, in col. 10, lines 39-40 (relied on by the Examiner), Mukherjee mentions client authentication key, not authenticating identity of the client as claimed.

As per **Claim 6**, in col. 10, lines 39-45 (relied on by the Examiner), Mukherjee mentions client authentication key and that it is checked, however, Mukherjee does not teach or suggest receiving authentication information from that client ad verifying the authentication information. Nor is there a teaching or suggestion in Mukherjee of providing the requested content file only if the authentication information is verified. In Mukherjee client is only given limited access to disk, and there is no teaching or suggestion of providing the requested content file to the client, or providing the requested content file to the client only if the authentication information is verified.

New Claim

New claim 27 further includes the limitation that storing content files on each NAS server for access by one or more clients includes mapping a set of the clients to each NAS server, to allow each NAS server to provide content files to the corresponding clients. Such limitations are not disclosed by the references, alone or in combination, for at least the reasons provided above

and other reasons. No new matter has been added.

CONCLUSION

For the foregoing, and other, reasons Applicants believe that the claims should be allowed.
Reconsideration and allowance of all the are respectfully requested.

Please continue to direct all communications regarding the above-referenced patent application to the principal agent of record.

Respectfully Submitted,



Michael Zarabian
Reg. No. 39,886

CERTIFICATE OF MAILING

I hereby certify that this correspondence or paper is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450, on **May 13, 2005**.

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